

# **The Oil Shock of 2005 and U.S. Agriculture**

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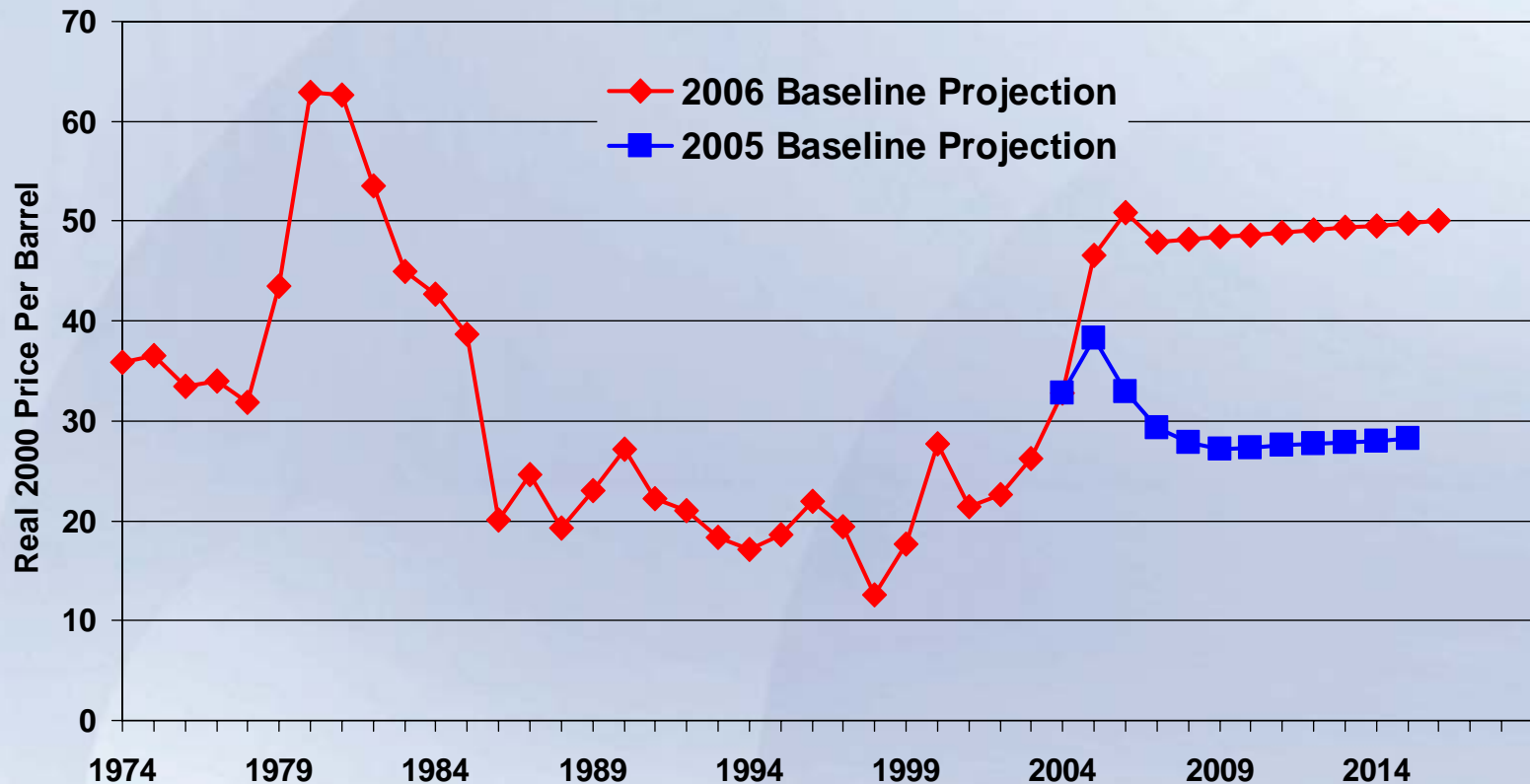


# Introduction

- Oil prices rose in 2005 more than anyone expected
- Change in the current outlook for long-term increase in oil and energy prices
- What has caused this dramatic change?
- What does it mean for U.S. agriculture?



# The USDA Baseline expectations of future oil price has jumped



Source: USDA Baseline



# What has caused change in energy outlook?

## Demand outstripped supply

- High GDP growth in China, India and other Asian Newly Industrialized Economies competing with.....
- High GDP growth and energy demand in the United States
- Supply uncertainties from Iran and Iraq, Venezuela, and Nigeria
- Difficulties bringing new oil supplies online



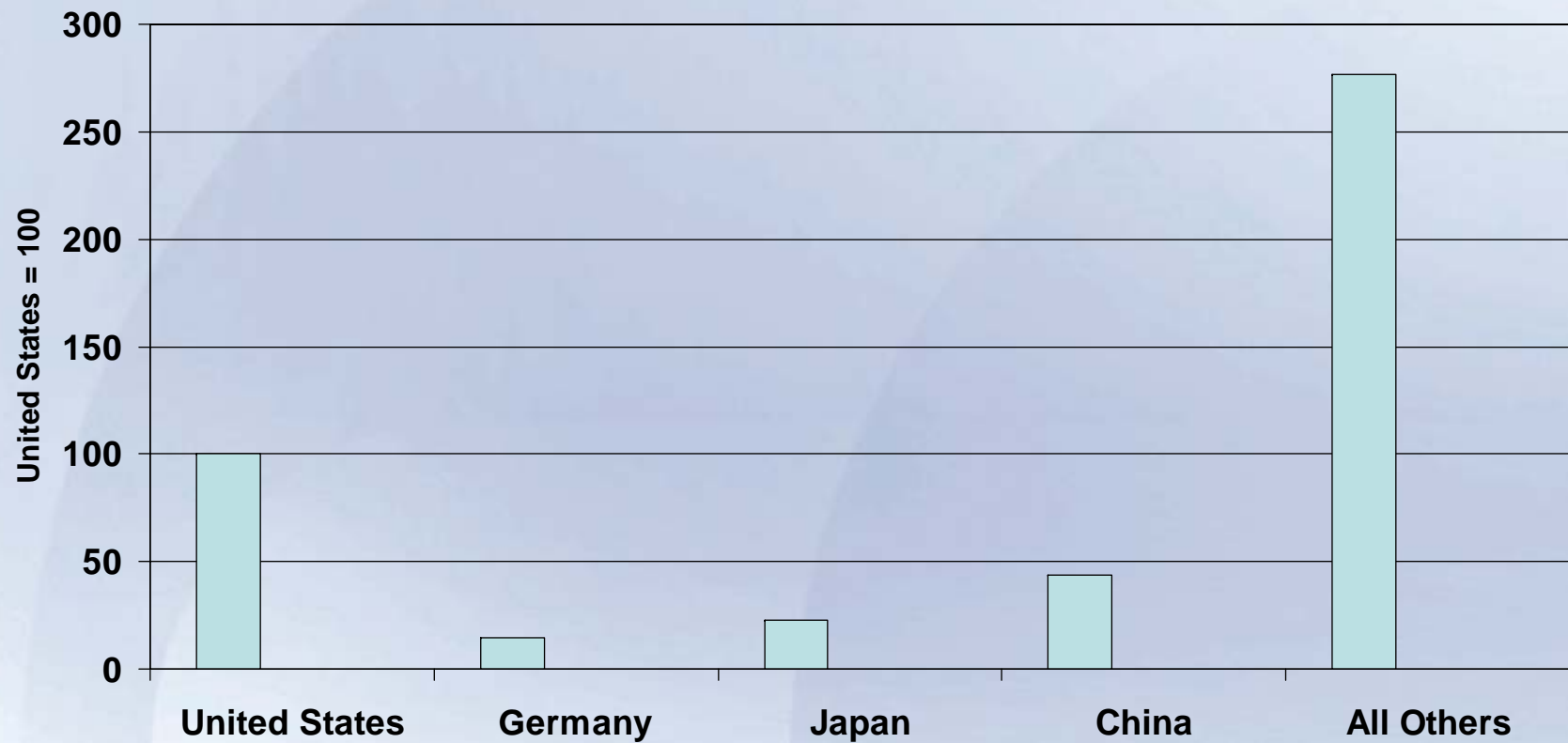
# What factors will stabilize the energy market?

Over time higher prices will induce

- efficiency gains
- conservation
- increase supplies from producers



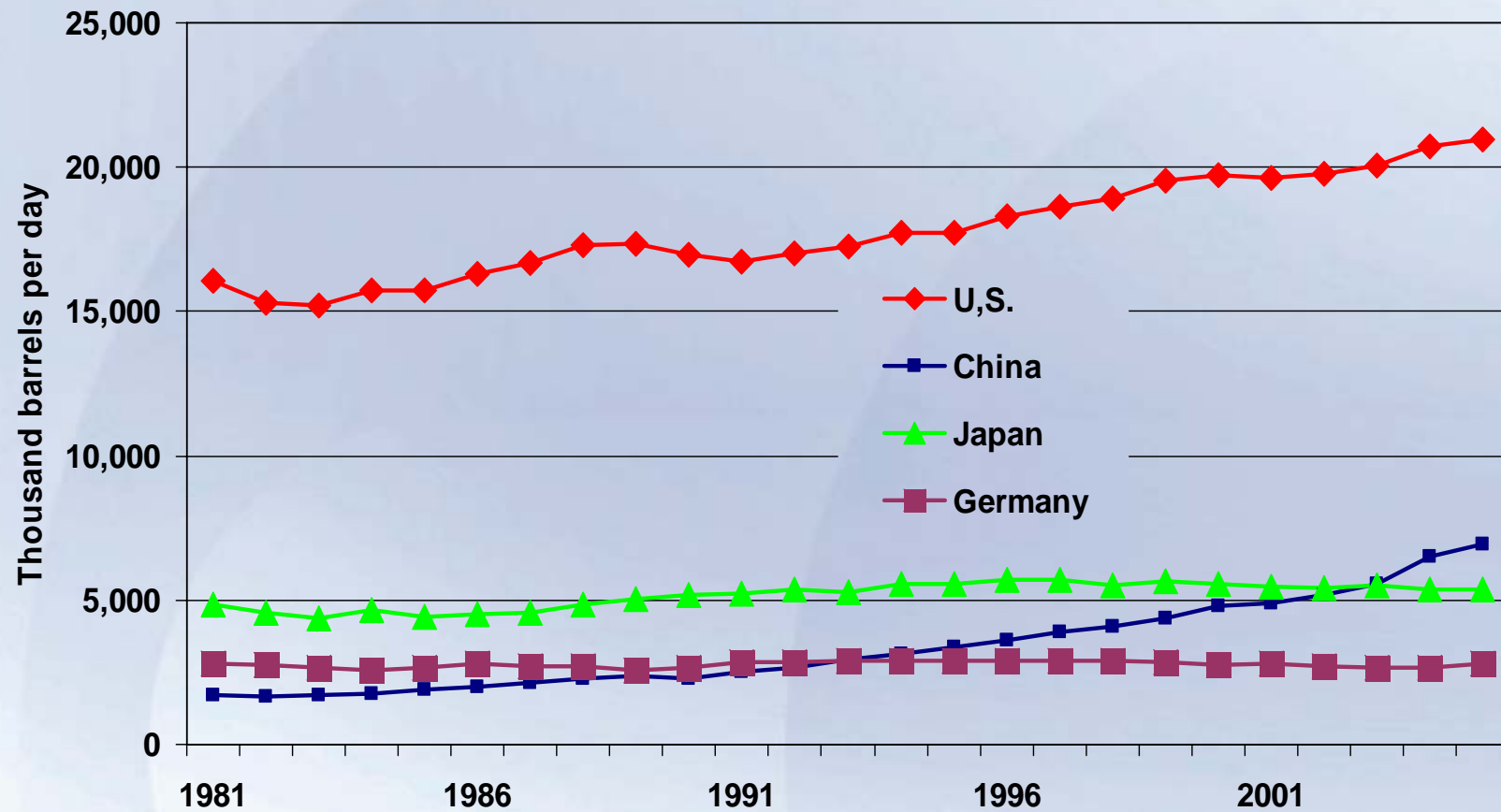
# Energy use index of major users



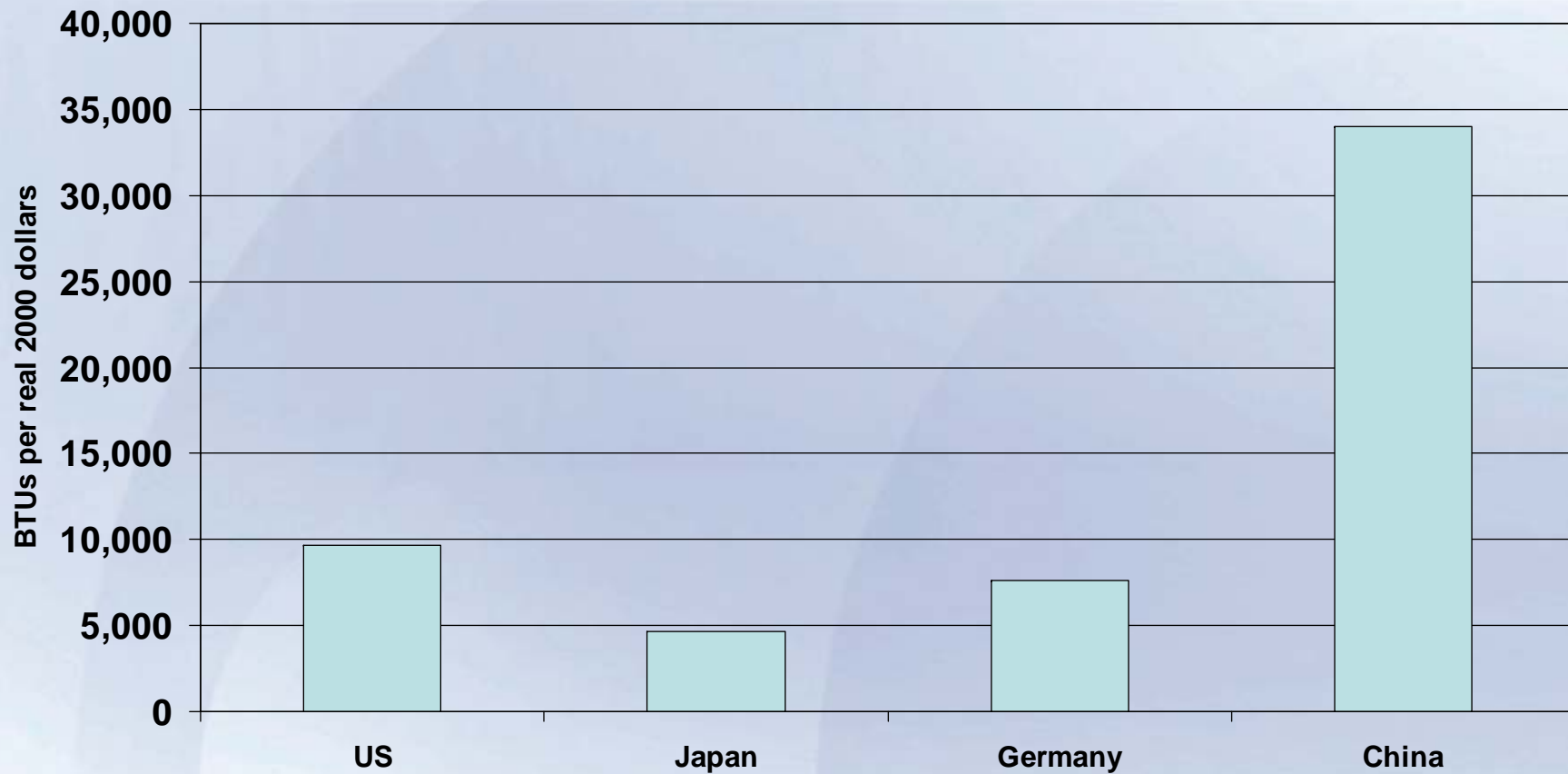
Source: EIA



# China becomes number two oil consumer in 2003



# China has high energy use per dollar output, average 2001-2003

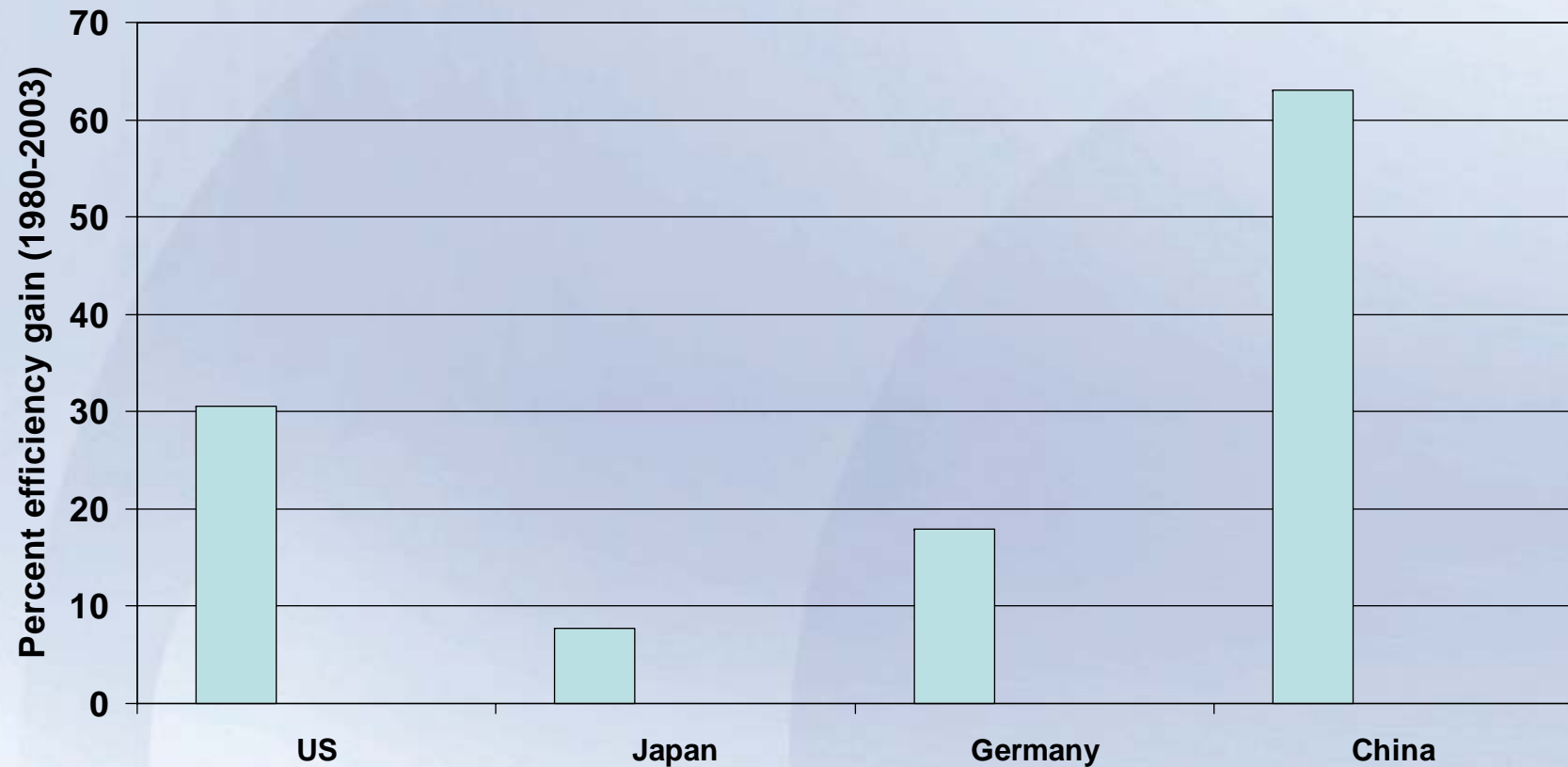


Source: EIA





# But China shows highest efficiency gains



Source: EIA

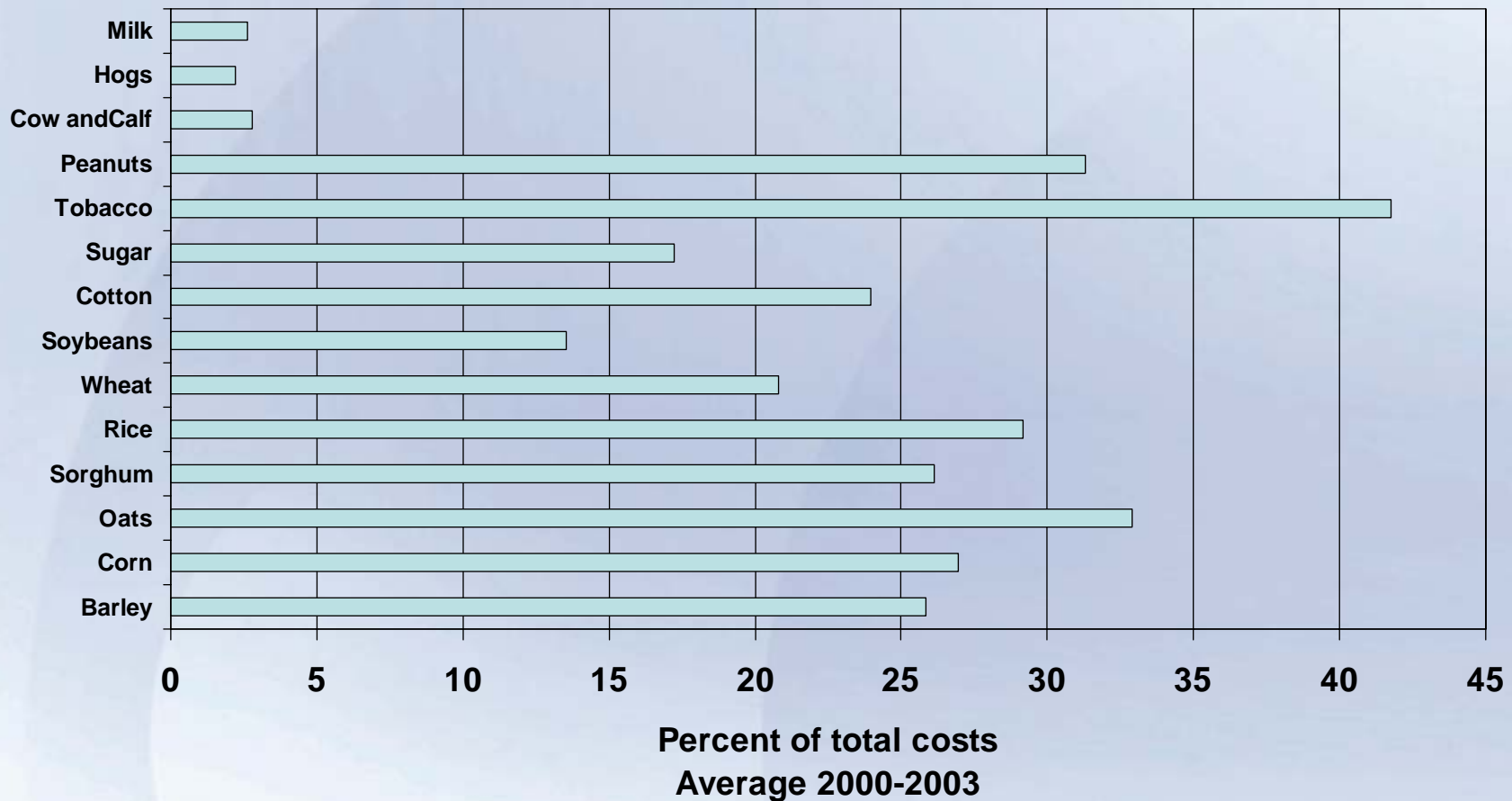


## Where does U.S. agriculture fit in?

- Agriculture is an energy intensive sector
- Cheap energy has facilitated energy intensity
- Efficiency gains more important for sector
- Reducing energy use will result from:
  - further efficiency gains
  - compositional change away from high energy use in agricultural subsectors



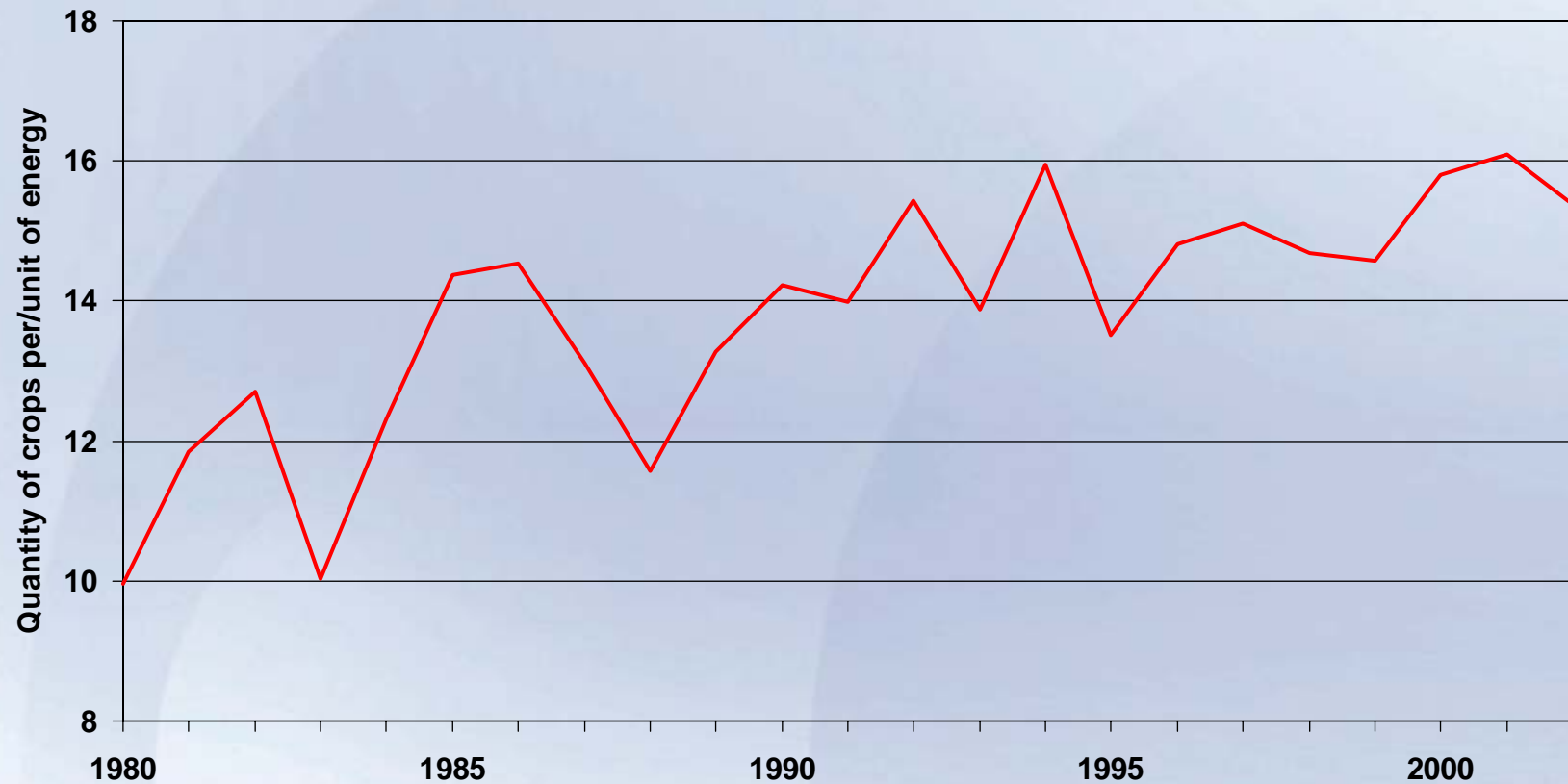
# Energy use is concentrated in crop production



Source: Economic Research Service, USDA



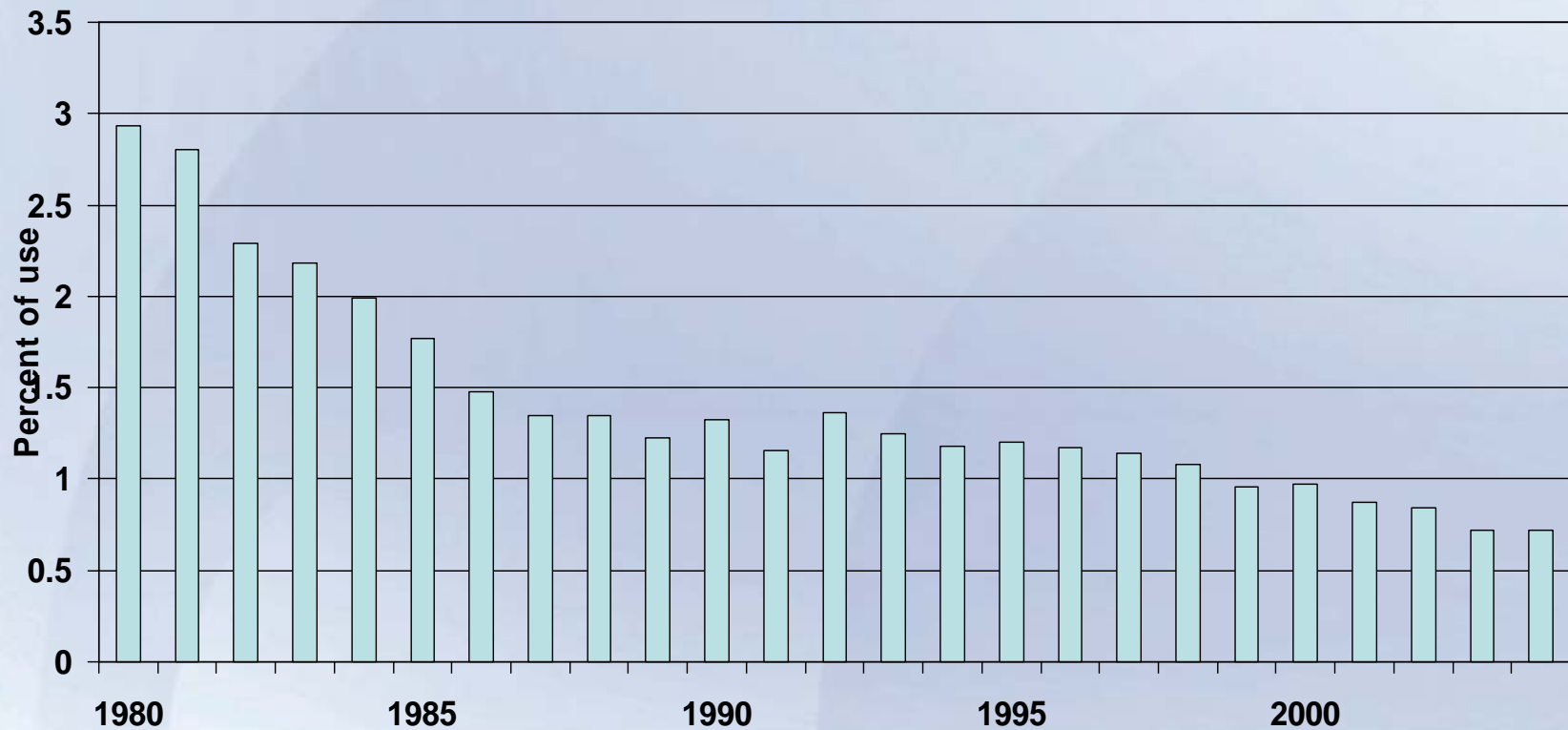
# U.S. agriculture has increased energy efficiency over 50 percent



Source: Economic Research Service, USDA



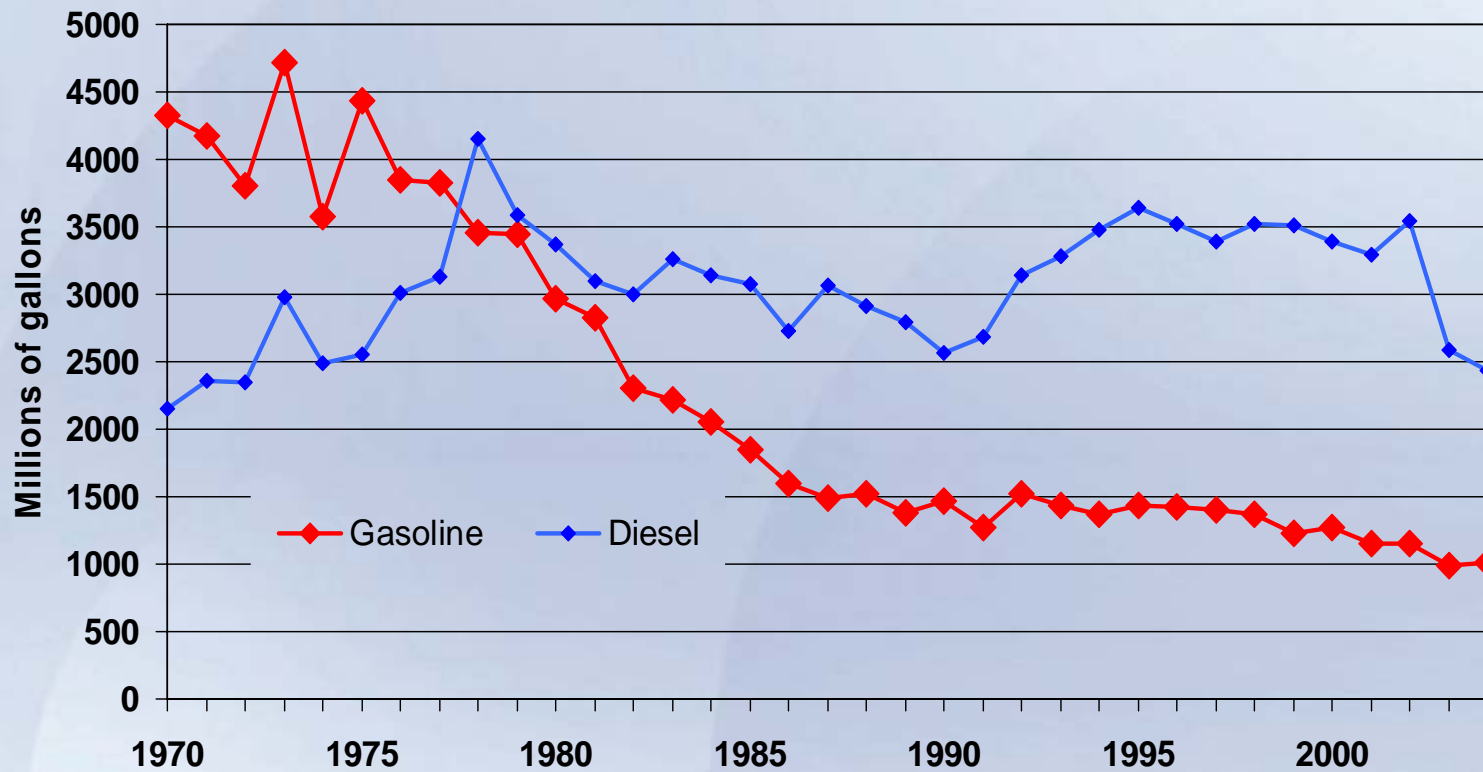
# Farm percentage of US gasoline use drops sharply from 1980 to 2004



Source: Economic Research Service, USDA



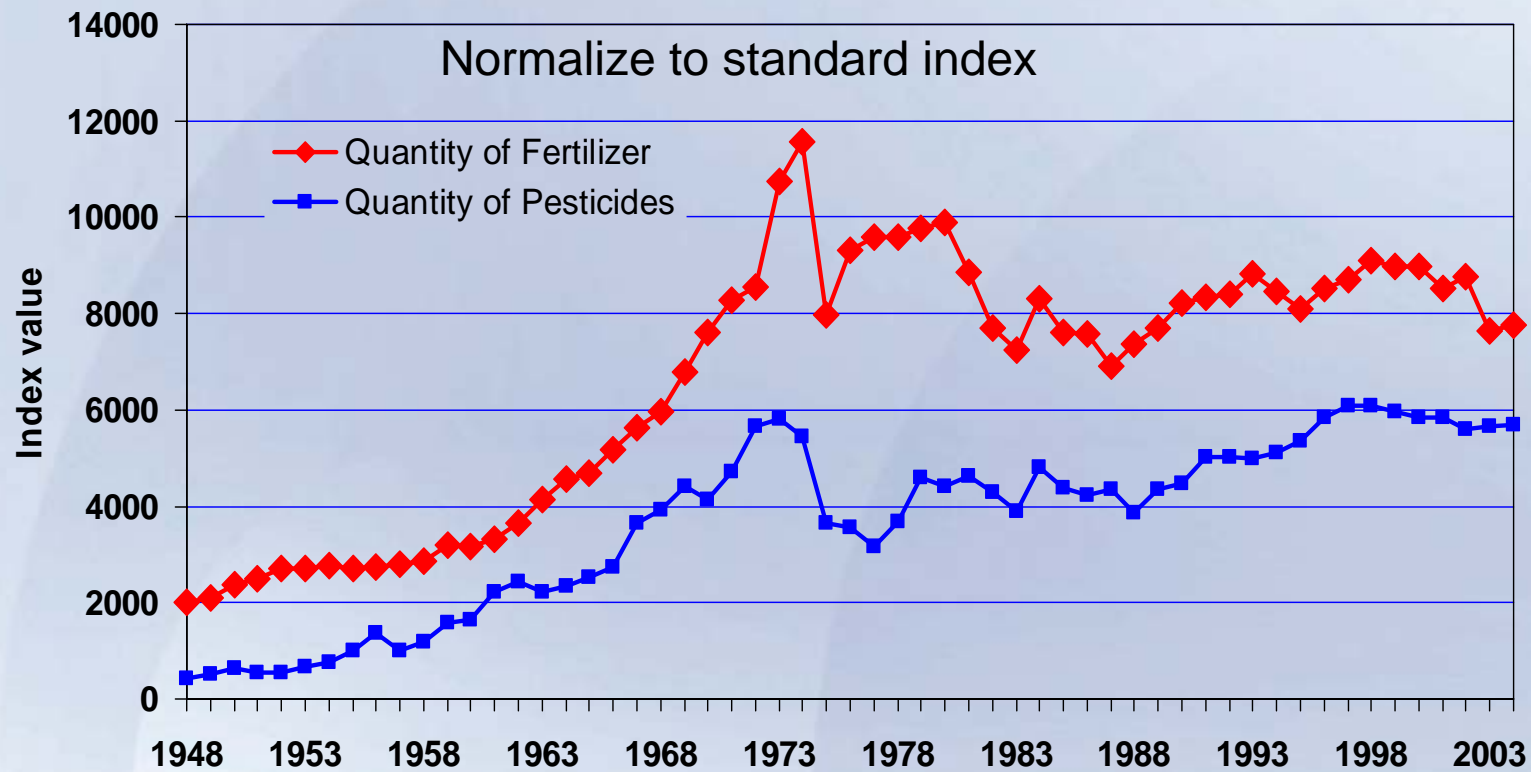
# Farmers replace gasoline with diesel



Source: Economic Research Service, USDA



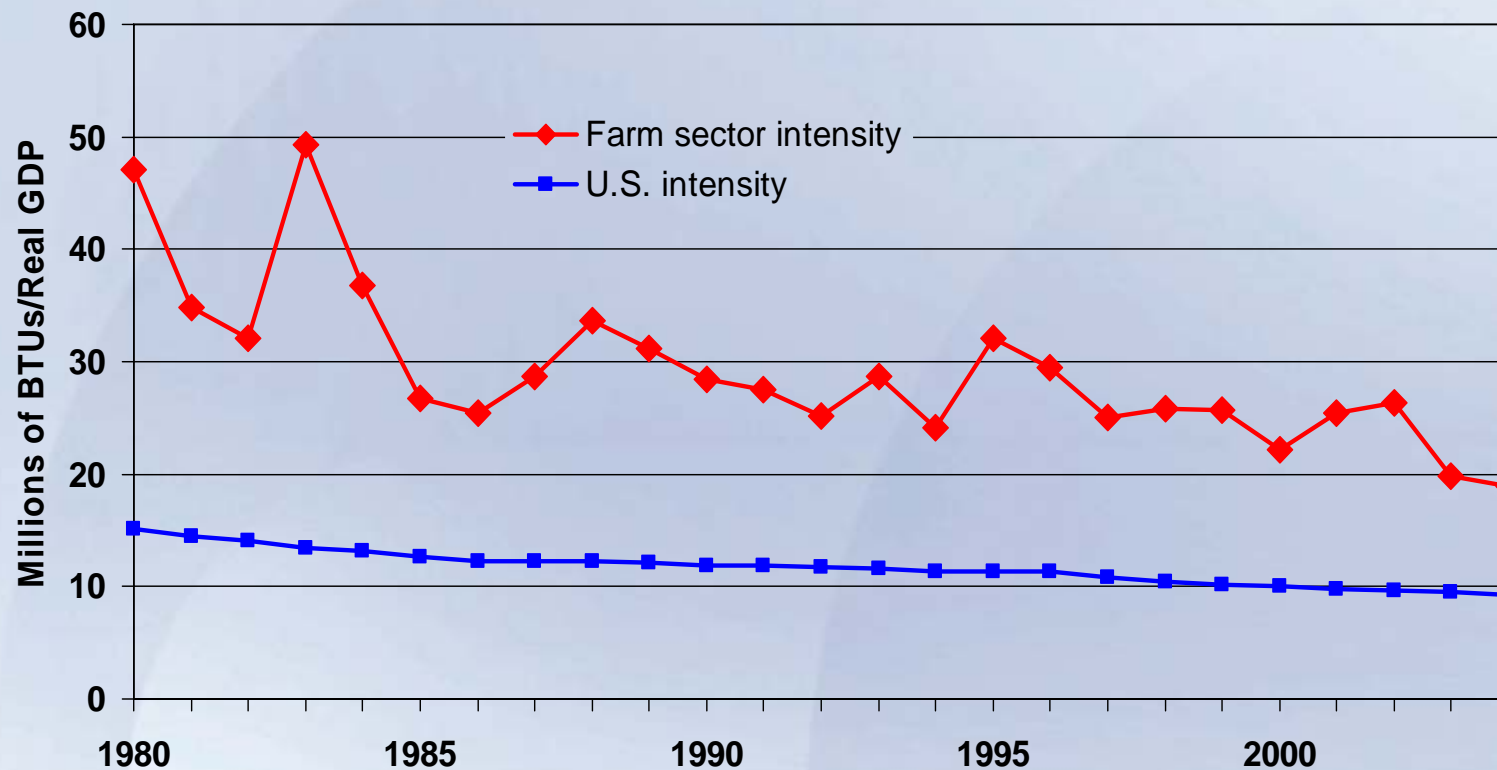
# Fertilizer use peaks in 1974 while pesticide use peaks in 1997



Source: Economic Research Service, USDA



# Farm energy intensity declined faster than overall U.S energy intensity 1980 to 2004



Source: Economic Research Service, USDA and EIA





# Emerging patterns of agricultural energy use and efficiency

- Energy will be a major share of farm costs, even as efficiency improves
- High energy costs will be a drag on farm income
- High energy prices will stimulate energy efficiency gains
- High energy costs will encourage production of lower energy crops

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